

Amendments to the Claims

This listing of claims will replace all prior versions and listings of claims in the application:

Listing of Claims

1-3. (Canceled)

4. (Currently Amended) A method for making [[on]] an object having at least one surface comprising the steps of:

forming a plurality of part layers such that inter-layer regions are defined therebetween, such that said inter-layer regions intersect said surface, said forming step including a layered manufacturing method to deposit a first flowable material to form said part layer; and

creating convex regions where said inter-layer regions intersect said surface.

5. (Original) A method for making an object as in claim 4, wherein said part layers have an intra-layer region, further comprising creating concave regions where said intra-layer regions intersect said surface.

6. (Currently Amended) A method for making an object as in claim 4, wherein ~~said forming step uses a layered manufacturing method to deposit a first flowable material to form said part layer; and~~

said creating step uses said layered manufacturing method to deposit a second flowable material to form a mold layer prior to depositing said first flowable material in said forming step, such that said second material [[acts]] mold layer contains said first flowable material.

7. (Original) A method for making an object as in claim 6, further comprising hardening said first flowable material.

8. (Original) A method for making an object as in claim 7, further comprising removing said second material.

9. (Currently Amended) A method for making an object of a first material, said object having at least one surface comprising the steps of:

a) forming a second material layer formed of a second material up to at least one boundary corresponding to said object surface, said second material layer having external convex edges;

b) forming a first material layer formed of said first material adjacent to said boundary and adjacent to said second material layer, wherein said first material is formed in a flowable state, such that said first material layer forms an impression along said boundary of said second material layer, said first material layer having external concave edge impressions adjacent to said second material layer convex edges;

c) repeating steps a) and b) a plurality of times, sufficient to form stacks of said first material layers adjacent to stacks of a plurality of said second material layers; and

d) removing said stacks of second material layers from said object surface.

10. (Original) A method for making an object as in claim 9, wherein said first material forming step uses a different material than said second material forming step.

11. (Canceled)

12. (Original) A method for making an object as in claim 9, wherein said first and second material forming steps form at least one interior surface and at least one exterior surface.

13. (Original) A method for making an object as in claim 9, wherein said first and second layers are formed using layered manufacturing methods selected from the group of methods consisting of fused deposition techniques, multi-phase jet solidification techniques, and laser-engineered net shaping techniques.

14. (Original) A method for making an object as in claim 9, wherein said first layer forming step includes depositing said first material in at least one substantially contiguous bead having a diameter and a length.

15. (Original) A method for making an object as in claim 9, wherein said first and second layer forming steps include forming a plurality of substantially circular overlapping material formations.

16. (Original) A method for making an object as in claim 9, wherein said first and second layer forming steps include fusing a previously deposited material.

17. (Original) A method for making an object as in claim 9, wherein said first material forming step includes depositing said first material in a flowable state, wherein said second material forming step includes depositing said second material in a flowable state.

18 - 21. (Canceled)

22. (Currently Amended) A method for making a part of a first material, the part having a cavity with a first volume and a first structure disposed over the cavity, the method comprising the steps of:

supporting the first structure during the building of the first structure by building a second structure of a second material having a second volume within the cavity to support the first structure; and

building the first structure over the second structure,

wherein the second structure building step forms said second structure second volume being substantially less than said cavity volume, wherein the first structure building step includes forming layers of the first material and the second structure building step includes forming layers of the second material, wherein the second structure building step forms the second structure of layers formed of beads, wherein at least a portion of the second structure

has a sloping side face having a plurality of indented layers indented less than or equal to about one-half (1/2) a bead width.

23. (Original) A method for making a part as in claim 22, wherein the second structure building step forms the second structure volume having less than about twenty percent (20%) of the cavity volume.

24. (Original) A method for making a part as in claim 22, wherein the second structure building step forms the second structure volume having less than about forty percent (40%) of the cavity volume.

25. (Original) A method for making a part as in claim 22, wherein the second structure building step forms the second structure volume having less than about fifty percent (50%) of the cavity volume.

26. (Original) A method for making a part as in claim 22, wherein the second material building step uses said second material different from said first material.

27. (Canceled)

28. (Currently Amended) A method for making a part as in claim ~~[[27]]~~ 22, wherein said second structure building step forms said second structure having a local width and a local height and at least one side face having a local slope defined by the change in local height per the change in local width, wherein said local slope is less than about ten (10).

29. (Currently Amended) A method for making a part as in claim ~~[[27]]~~ 22, wherein said second structure building step forms said second structure having a local width and a local height and at least one side face having a local slope defined by the change in local height per the change in local width, wherein said local slope is less than about two (2).

30. (Currently Amended) A method for making a part as in claim ~~[[27]]~~ 22, wherein said second structure building step forms said second structure having at least one side face having a deviation from vertical of at least twenty degrees (20°).

31. (Currently Amended) A method for making a part as in claim ~~[[27]]~~ 22, wherein said second structure building step forms said second structure having at least one side face having a deviation from vertical of at least forty degrees (40°).

32. (Currently Amended) A method for making a part as in claim ~~[[27]]~~ 22, wherein the second structure building step forms the second structure of layers formed of beads having a width, a length, and a height, wherein at least a portion of the second structure has a sloping side face having a plurality of indented layers indented between about one-half (1/2) a bead width and one-tenth (1/10) a bead width.

33. (Original) A method for making a part as in claim 22, wherein said cavity has a floor and said second structure forming step include building a column having a top portion and a middle portion, wherein the top portion is built wider than the middle portion.

34. (Currently Amended) A method for making a part as in claim 22, wherein said cavity has a floor and a ceiling, and at least one side wall forming a top corner where said side wall joins said ceiling, wherein said second structure building step includes building a corner support piece at said corner to support said ceiling from said side wall

35. (Currently Amended) A method for making a part as in claim ~~[[22]]~~ 34, wherein said corner support piece is bonded to said ceiling near said corner and to said wall near said corner.

36 - 40. (Canceled)

41. (New) A method for making a part of a first material, the part having a cavity with a bottom, a first volume, and a first structure disposed over the cavity, the method comprising the steps of:

building at least a portion of the first structure;

building a second structure of a second material having a second volume within the cavity to support the first structure during the building of the first structure, wherein the second structure building step forms said second structure abutting the first structure along an interior wall of the cavity, wherein the second structure does not extend to the bottom of the cavity.

42. (New) A method for making a part as in claim 41, wherein the second volume is substantially less than the cavity volume.

43. (New) A method for making a part of a first material, the part having a cavity with a first volume, at least one interior wall, and a first structure disposed over the cavity, the method comprising the steps of:

supporting the first structure during the building of the first structure by building a second structure of a second material having a second volume within the cavity to support the first structure; and

building the first structure over the second structure, wherein the second structure building step forms said second structure attached to said first structure along at least one interior wall of the cavity.

44. (New) A method for making a part as in claim 43, wherein the second volume is substantially less than the cavity volume.